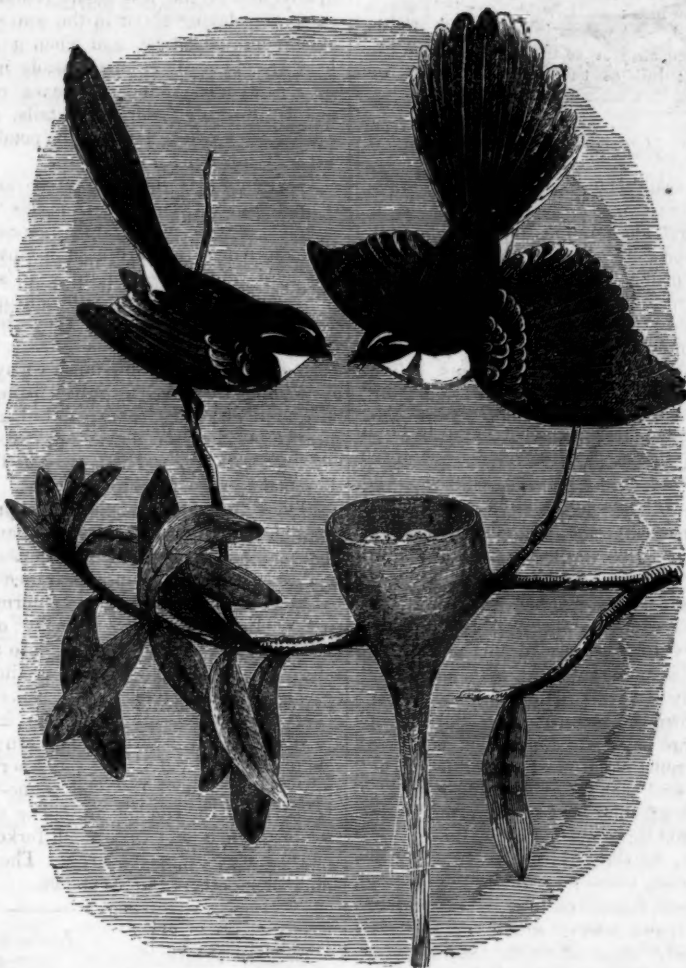


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ONE PENNY.THE WHITE-SHAFTED FANTAIL, (*Rhipidura Albiscapa*, GOULD.)

THE elegant little bird which forms the subject of our present notice belongs to an exceedingly numerous and important family, scattered throughout the warmer portions of the earth, and generally known under the name of "Fly-catchers." The service rendered by these birds in tropical countries, where the insect tribes abound to a degree that is most distressing to men and animals, can scarcely be over-estimated. How powerless is man to resist the invasions of the swarming myriads of the air in regions where the wondrous energy of nature is almost unceasingly at work in their production! What devastation to the products of the soil would result from their rapid multiplication, were there no check upon their increase, beyond that which it is in the power of man to offer! It is here, as in many other instances, that we are called upon to admire, and to be grateful for that equal balance which has been established throughout nature, whereby the super-abundance in one department, is equipoised by the counteracting propensities exhibited in another.

The wooded regions of warm climates are those in which the fly-catchers abound. They dwell in wild and

solitary spots, and seize their prey in mid-air; their favourite resting-place is, therefore, on the tops of trees, where they can enjoy an extended vision, and whence they rarely descend to the ground. In Europe the species are few, but in Africa, Asia, and especially in America they are most abundant. In the latter country the large species of fly-catchers, called *tyrants*, are constantly at work in the capture of multitudes of insects, to whom they form a numerous and powerful class of enemies. The species we have chosen for the illustration of this article, is a native of Australia, and is the darkest in colour of the several varieties common in that land. The Australian species of this bird present considerable varieties in colour, according to the situations in which they are found: the birds of Western Australia, for instance, are generally much lighter in colour than those of Southern Australia, or New South Wales. The original drawing of the White-shafted Fantail, with the nest and plant, was made in Van Dieman's Land, and forms the subject of one of the coloured plates in Gould's splendid work on the birds of Australia. The bird is described by that writer as

being a migratory rather than a permanent species, changing its locality according to the season of the year, resorting to the more open parts during the summer months, and retiring in autumn to thick bushes and warm secluded gulleys, where it finds a supply of aphides and other small insects, upon which it chiefly subsists:—

In Van Dieman's Land (says Mr. Gould,) I have seen it, in the depth of winter, in the gulleys on the sunny sides of Mount Wellington; and it is my opinion, that instead of migrating, they only retire at this season to such localities as are sheltered from the bleak south-westerly winds which then so generally prevail, and where insects are still to be found. The bird is also subject to the same laws on the continent of Australia; but as the temperature of the country is more equable, its effects are not so apparent.

This species inhabits trees of various growth, from whence it darts out in pursuit of its prey. It performs many graceful evolutions in the air, rising almost perpendicularly, spreading out its tail, and frequently making a complete summerset in its descent. It has a peculiar twittering song while flitting about among the leaves and flowers in pursuit of its insect food. It does not search the air on the wing, like the swallow tribe, but darts upon its prey with great velocity, and generally with unerring aim; it is also observed usually to return to the same branch it had left. These birds are generally found in pairs, but four or five are sometimes seen in company.

This interesting species does not often begin to build until the month of October; though, during the three following months it rears two or three broods. The nest is of elegant construction, resembling a wine-glass in shape, and woven together with exquisite skill. There is an extensive genus of New Holland plants, named *Eucalyptus*, many of which are useful timber-trees, while some of the species form an ornamental addition to our conservatories and green-houses in Europe. It is of the inner bark of a species of *Eucalyptus* that this little bird usually forms its nest, neatly lining it with down from the tree-ferns, (those beautiful objects peculiar to tropical climates,) intermingled with moss of the finest quality. Nor is the little dwelling yet complete; for around the whole of the exterior the tasteful and judicious artisan winds a veil of peculiar elegance, formed of spiders' webs, which not only serves to beautify, and bind together the other materials, but helps likewise to strengthen the attachment of the nest to the branch on which it is constructed. The situation chosen for the nest is much varied. Mr. Gould tells us that he has observed it in the midst of dense brush, in the more open forest, and placed on a branch overhanging a mountain rivulet, but always within a few feet of the ground. The eggs are invariably two in number, seven lines long, with a white ground blotched all over, but particularly at the large end, with brown, slightly tinged with olive; and on leaving the nest, the young birds so closely resemble their parents in colour and appearance, that they are only to be distinguished by the wing-coverts, being edged with brown, a feature lost after the first moult.

The description of this bird, as to its disposition and habits, reminds us in some respects, of our own household bird, the Robin Red-breast. It is said to be remarkably tame, allowing of a near approach without evincing the slightest timidity, and entering the houses of persons resident in the bush, in pursuit of gnats or other insects. But when it is rearing its young, this freedom is exchanged for anxious watchfulness, and extreme agitation on the approach of an intruder to the vicinity of the nest, the site of which is always betrayed by the active uneasy movements of the parent birds. If the nest can be approached unobserved, the male bird may be seen mounting in the air, and singing to his mate while she performs the duty of incubation.

The full-grown birds of the darker variety have the whole of the upper surface of the body, as well as the wing-coverts, and a band across the chest, black, slightly tinged with olive; the colour increasing in depth at the tail, crown of the head, and pectoral band. A stripe over the eye, and a lunar-shaped mark behind it, are white; as are also the throat, and tips of the wing-coverts. The eyes are black, the bill and feet brownish black. The shafts, outer webs, and tips of all but the two middle tail-feathers are white; the under surface buff. In the New Zealand species the lateral tail feathers are entirely white, which appears to constitute a marked distinction between two species hitherto apparently confounded. The bill is remarkably short, so that the bristles, which are thickly set, reach as far as the tip; the feathers of the head and throat are very full, resembling those of a titmouse. The total length of the bird is six inches. The skin is so very tender that there is some difficulty in preserving stuffed specimens.

These birds have a most extensive range over the southern portions of Australia, and there is little doubt but that they are numerous in every part of that vast country. It would be a most injudicious act on the part of a settler to endeavour to reduce the number of Fly-catchers. Multiplied as they are in those countries they are by no means too numerous to keep down the far superior multitude of insects.

The services of a corresponding class of birds in this country are thus alluded to by Buffon:—

How happens it that in our own temperate climates we are more tormented with flies in the commencement of autumn, than in the middle of summer? Why, in the fine days of October do we see the air filled with myriads of gnats? Because the insectivorous birds, such as swallows, nightingales, warblers, &c., have deserted us. This short lapse of time, during which they have too prematurely abandoned our climate, is sufficient to cause us to be more incommoded with the multitude of insects, than at any other season. What then must be the consequence, if, from the moment of their arrival—if, during the entire summer—if, in short, for the whole time of their sojournment amongst us, we continue to make their destruction a source of amusement?

VISIT TO THE ANTIQUARY'S STUDY.

It was a lofty room of middling size, obscurely lighted by high narrow latticed windows. One end was entirely occupied by book-shelves, greatly too limited in space for the number of volumes placed upon them, which were, therefore, drawn up in ranks of two or three files deep, while numberless others littered the floor and the tables, amid a chaos of maps, engravings, scraps of parchment, bundles of paper, pieces of old armour, swords, dirks, helmets, and Highland targets. Behind Mr. Oldbuck's seat, which was an ancient, leathern-covered, easy chair, worn smooth by constant use, was a huge oaken cabinet, decorated at each corner with Dutch cherubs, having their little duck-wings displayed, and great jolter-headed visages placed between them. The top of this cabinet was covered with busts, and Roman lamps and paterne, intermingled with one or two bronze figures. The walls of the apartment were partly clothed with grim old tapestry, representing the memorable story of Sir Gawaine's wedding, in which full justice was done to the ugliness of the Lothely Lady; although, to judge from his own looks, the gentle knight had less reason to be disgusted with the match on account of disparity of outward favour, than the romancer has given us to understand. The rest of the room was panelled or wainscotted with black oak, against which hung two or three portraits in armour, and as many in tie-wigs and laced coats. A large old-fashioned oaken table was covered with a profusion of papers, parchments, books, and nondescript trinkets and gewgaws, which seemed to have little to recommend them, besides rust and the antiquity which it indicates. In the midst of this wreck of ancient books and utensils, with a gravity equal to Marius among the ruins of Carthage, sat a large black cat, which, to a superstitious eye, might have presented the tutelary demon of the apartment. The floor, as well as the table and chairs, was overflowed by the same miscellaneous trumpery, where it would have been as im-

possible to find any individual article wanted, as to put it to any use when discovered.

Amid this medley, it was no easy matter to find one's way to a chair; without stumbling over a prostrate folio, or the still more awkward mischance of overturning some piece of Roman or ancient British pottery. And when the chair was attained, it had to be disencumbered, with a careful hand, of engravings which might have received damage, and of antique spurs and buckles, which would certainly have occasioned it to any sudden occupant.

Having at length fairly settled himself, and being nothing loth to make inquiry concerning the strange objects around him, which his host was equally ready, as far as possible, to explain, Lovel was introduced to a large club, or bludgeon, with an iron spike at the end of it, which had been lately found in a field adjacent to an old burying-ground. It had mightily the air of such a stick as the Highland reapers use to walk with on their annual peregrinations from their mountains; but Mr. Oldbuck was strongly tempted to believe, that as its shape was singular it might have been one of the clubs with which the monks armed their peasants, in lieu of more martial weapons, whence, he observed, the villains were called *Colce-carles*, or *Kolb-kerts*, that is, *Claverigs*, or club-bearers.

He next exhibited thumb-screws, which had given the Covenanters of former days the cramp in their joints, and the collar of a fellow convicted of theft, whose services, as the inscription bore, had been adjudged to a neighbouring baron, in lieu of the modern Scottish punishment. Many and various were the other curiosities which he showed; but it was chiefly upon his books that he prided himself. The collection was indeed a curious one, and might well be envied by an amateur. Yet it was not collected at the enormous prices of modern times, which are sufficient to have appalled the most determined bibliomaniac upon record. Mr. Oldbuck did not follow these collectors in such excess of expenditure, but taking pleasure in the personal labour of forming his library, saved his purse at the expense of his time and toil. He was no encourager of that ingenious race of middlemen, who, trafficking between the obscure keeper of a stall and the eager amateur, make their profit at once of the ignorance of the former, and the dear-bought skill and taste of the latter. When such were mentioned in his hearing, he seldom failed to point out how necessary it was to arrest the object of your curiosity in its first transit, and to tell his favourite story of Snuffy Davy, and Caxton's *Game of Chess*. "Davy Wilson," he said, "commonly called Snuffy Davy, from his inveterate addiction to black rappee, was the very prince of scouts for searching blind alleys, cellars, and stalls, for rare volumes. He had the scent of a slow-hound, sir, and the snap of a bull-dog. He would detect you an old black-letter ballad among the leaves of a law-paper, and find an *editio princeps* under the mask of a school Corderius. Snuffy Davy bought the *Game of Chess*, 1474, the first book ever printed in England, from a stall in Holland, for about two groschem, or two-pence of our money. He sold it to Osborne for twenty pounds, and as many books as came to twenty pounds more. Osborne sold this inimitable windfall to Dr. Askew for sixty guineas. At Dr. Askew's sale," continued the old gentleman, kindling as he spoke, "this inestimable treasure blazed forth in its full value, and was purchased by royalty itself, for one hundred and seventy pounds! Could a copy now occur, Lord only knows," he ejaculated with a deep sigh and lifted-up hands, "Lord only knows what would be its ransom; and yet it was originally secured by skill and research, for the easy equivalent of twopence sterling. Happy, thrice happy, Snuffy Davy! and blessed were the times when thy industry could be so rewarded!"

"Even I, Sir," he went on, "though far inferior in industry and discernment, and presence of mind, to that great man, can show you a few, a very few things, which I have collected, not by force of money, as any wealthy man might, but gained in a manner that shows I know something of the matter. See this bundle of ballads, not one of them later than 1700, and some of them an hundred years older. I wheedled an old woman out of these, who loved them better than her Psalm-book. Tobacco, sir, snuff, and the *Complete Syren*, were the equivalent! For that mutilated copy of the *Complaynt of Scotland*, I sat out the drinking of two dozen bottles of strong ale with the late learned proprietor, who in gratitude bequeathed it to me by his last will. These little Elzevirs are the memoranda and trophies of many a walk by night and morning through the Cowgate, the Canongate, the Bow St. Mary's Wynd,—wherever, in

fine, there were to be found brokers and trokers, those miscellaneous dealers in things rare and curious. How often have I stood haggling on a halfpenny, lest, by a too ready acquiescence in the dealer's first price, he should be led to suspect the value I set upon the article!—how have I trembled lest some passing stranger should chop in between me and the prize, and regarded each poor student of divinity that stopped to turn over the books at the stall, as a rival amateur or prowling bookseller in disguise. And then the sly satisfaction with which one pays the consideration, and pockets the article, affecting a cold indifference, while the hand is trembling with pleasure! Then to dazzle the eyes of our wealthier and emulous rivals by showing them such a treasure as this, (displaying a little black smoked book, about the size of a primer,) to enjoy their surprise and envy, shrouding meanwhile under a veil of mysterious consciousness our own superior knowledge and dexterity; these, my young friend, these are the white moments of life, that repay the toil and pains, and sedulous attention, which our profession above all others peculiarly demands."

Lovel was not a little amused at hearing the old gentleman run on in this manner, and however incapable of entering into the full merits of what he beheld, he admired, as much as could have been expected, the various treasures which Oldbuck exhibited. There were editions esteemed as being the first, and there stood those scarcely less regarded as being the last and best: here was a book valued because it had the author's final improvements, and there another which was in request because it had them not. One was precious because it was a folio, another because it was a duodecimo; some because they were tall, some because they were short: the merit of this lay in the title-page, of that in the arrangement of the letters in the word *Finis*. There was, it seemed, no peculiar distinction, however trifling or minute, which might not give value to a volume, providing the indispensable quality of scarcity, or rare occurrence, was attached to it.

Not the least fascinating was the original broadside—the *Dying Speech, Bloody Murder*, or *Wonderful Wonder of Wonders*, in its primary tattered guise, as it was hawked through the streets, and sold for the cheap and easy price of one penny, though now worth the weight of that penny in gold. On these the Antiquary dilated with transport, and read, with a rapturous voice, the elaborate titles, which bore the same proportion to the contents that the painted signs without a showman's booth do to the animals within. Mr. Oldbuck, for example, piqued himself especially upon possessing an *unique* broadside entitled and called, "Strange and Wonderful News from Chipping Norton in the County of Oxon, of certain dreadful Apparitions which were seen in the Air on the 26th of July, 1610, at half-an-hour after Nine o'clock at Noon, and continued till Eleven, in which time was seen the Appearances of several flaming Swords, strange Motions of the superior Orbs; with the unusual sparkling of the Stars, with their dreadful continuations; with the account of the opening of the Heavens, and strange Appearances therein disclosing themselves, with several other prodigious Circumstances, not heard of in any Age, to the great Amazement of the Beholder."

"You laugh at this," said the proprietor of the collection, "and I forgive you; but you will grow wiser, and see more justly, when you come to wear spectacles. Yet stay, I have one piece of antiquity, which you, perhaps, will prize more highly." So saying he unlocked a drawer, and took out a bundle of keys, then pulled aside a piece of the tapestry which concealed the door of a small closet, into which he descended by four stone steps, and after some tinkling among bottles and cans, produced two long stalked wine-glasses, with bell-mouths, such as are seen in Tenier's pieces, and a small bottle of what he called easy Canary, with a little bit of diet-cake, on a small silver server of exquisite old workmanship.—WALTER SCOTT.

THE soul of man is not only delighted with knowledge, but, if she be in a healthy and natural condition, she is delighted also with the act of learning. But that this act should be either agreeable or efficacious, it is necessary that we should do it for ourselves; what is merely didactic is always wearisome, and the most effectual advances are made, and our progress is then most pleasurable; when with no more assistance from others than is absolutely necessary, we master every difficulty by our own resources, and associate in our recollection the beauty of truth with the triumph of successful inquiry.—HEBER.

A VOYAGE DOWN THE DANUBE.

VI.

PETERWARDEIN—SEMLIN—BELGRADE—
THE SHALLOWS.

OUR tour along the noble river of Hungary recommences at that point where the district of the Austrian empire, called the "military frontier," begins. The remarkable circumstances connected with this district will engage our attention in a separate article; and we will therefore here merely remark, that it is a flat district on the northern bank of the Danube, strictly guarded from incursions on the part of the Turks, whose frontier reaches the southern bank of the same river.

Peterwardein, the "Gibraltar of Hungary," as it has been called, is the first Hungarian town within the military frontier on the north bank, and is immediately opposite the town of Neusatz on the south bank, a bridge of boats over the Danube forming a medium of communication between them. Peterwardein is a place of extraordinary strength both by nature and art: it commands the Danube, whose waters bathe the walls on the west and south sides. On a rock isolated on three sides stands the upper fortress; and on the northern foot of the rock lies the lower fortress, which includes what is properly the town, and is partly on a gentle slope. As a precaution in case of a very close siege, a well has been excavated in the rock to a depth below the surface of the Danube. The lower fortress is provided with bastions, ravelins, lofty walls, and very broad and deep moats which may be filled with water from the river. The town itself is quite insignificant compared with the fortifications above it; it consists, in fact, of but three streets, containing fourteen public buildings, and a small number of private houses. The neighbouring town of Neusatz, though quite modern, and unimportant as a place of strength, numbers many more inhabitants than Peterwardein. It was founded in the reign of the Empress Maria Theresa, in the last century; and owes its existence to the numbers of German colonists who emigrated thither from Belgrade at the time when the latter was given up to the Turks; the excellence of the situation, too, near the junction of the four rivers, Danube, Drave, Theiss, and Save, has greatly affected the rate of increase in the number of the inhabitants, which now amounts to seventeen thousand.

The voyage from Peterwardein to Semlin generally takes about six hours by a steam-boat; the interval between the two towns presenting nothing of note but the confluence of the Danube with the river Theiss,—a river favourably known for its excellent fish, and unfavourably for the vast quantity of mud it deposits in the larger stream—and the town of Carlowitz. This town occupies a place in history in connection with a treaty of peace, signed here in 1699; a treaty whereby Austria secured undisputed possession of Hungary, Slavonia, and Transylvania, countries hitherto partially owned by the Turks.

Semlin is the last Austrian town on the right bank of the Danube, and is in many respects singularly situated. Here the river Save contributes its waters to the stream of the Danube; and here three large countries meet at a point, viz., Hungary, Austria, and the Turkish province of Servia. Semlin is on the Austrian side, and Belgrade on the Servian side, of the mouth of the Save. Semlin is inhabited by a motley population of Germans, Greeks, Illyrians, Croats, Servians, Gypsies, and Jews. It consists of an inner town, and the suburb of Frauensthal; but both present rather a mean appearance, consisting chiefly of mud-huts thatched with reeds ranged in streets which are little better than wide ditches. It is, however, a place of considerable trade, as being a link in the chain of communication between Austria and Turkey. For the same reason, likewise, it is a quarantine station, one of the most considerable in the Austrian Empire.

Quarantine implies all the arrangements connected with the prevention of contagion, by the arrival of travellers from a country where plague is supposed to prevail. Travellers coming overland from Turkey are compelled to pass a period of from ten to forty days in the lazaretto or quarantine station at Semlin. This lazaretto is a large piece of ground, fenced in by high walls and stockades, inclosing a number of cottages, each surrounded by a separate palisade, and allotted to a particular lodger for the period of his detention. The inmates are supplied with meals by an appointed person; and no persons on the outside are allowed to hold communication with those within, except by standing a few yards beyond the paling, and there holding converse. The strictness of the quarantine system may be estimated from the following regulation;—no person is allowed to cross the river Save from Semlin to Belgrade, except he be accompanied by a "health-officer," and he must return to Semlin before sunset; if he breaks these conditions, or touches anything after landing in the Servian bank, or allows anything to touch him, he must go into the lazaretto for ten days on his return. These rigorous precautions have been adopted in consequence of the frequency with which, in past times, contagious disorders have been introduced into Europe from the East through the Turkish dominions*.

We cannot preface our notice of Belgrade better than by quoting the description of a traveller, who passed over from Semlin to that place in 1826:—

We were rowed across the Save in about an hour in the quarantine boat, obligingly furnished to us by the Commandant, and were escorted by three quarantine-officers, armed with long staves, which they extended before us and at each side, to guard us from being touched, and to keep off all pollution as we walked along; a matter of no little difficulty, as the Turks enjoy excessively the fun of putting inquisitive strangers in contact with something which will cause them to incur quarantine. The objects which principally presented themselves to our notice were the horrid filth of the streets, littered from end to end with mud, straw, and offal, so that it was difficult to find a place to put down our feet. Here and there herds of wild dogs were seen prowling about, or lying upon huge dung-heaps; there are not less, it is said, than five thousand of these animals in the town, owned by no master. We were first conducted to the bazaar, which we found to consist of many rows of miserable wooden booths, opened on one side by a falling shutter, so as to disclose the owner sitting cross-legged, engaged in the listless occupation of smoking. The contents of all the shops together would not have stocked half a dozen in Vienna. The cook-shops, in which "kibans," and other nauseous-looking delicacies, preparations of meat, fat, and garlic, were exposed for sale, which remind me of the Arabian Nights, can scarcely be viewed without disgust; and the only things which we fancied were the shawls, carpets, and pipes, which we were of course not permitted to purchase, or even to touch. The streets containing Turkish dwellings, through which we passed, consist of mere dead-walls, the windows being all turned inward to prevent the women staring at the passers-by. We saw only six females in the course of our walk; they were thickly enveloped, and wore long tapering black veils with two holes at the top to allow their eyes to peep through.

Such a description as the above, though it very well represents the impression produced on visitors accustomed to English usages, scarcely does justice to the place unless accompanied by a notice of its more enduring characteristics. Belgrade has been the theatre of many important events. It formed part of the Greek Empire till the year 1086, when it was taken by the Hungarians. When Constantinople fell into the hands of the Turks, in 1456, one of the first acts of the conquerors was to attack the strong fortress of Belgrade; but the Hungarians defended the town so resolutely as to frustrate the attempt. In 1522, however, another attempt on the part of the Turks was successful; and

* The reader will find two interesting articles on Quarantine and Lazarettos in *Saturday Magazine*, Vol. XVI., pp. 173, 179

Belgrade remained in their power till 1688, when the Elector of Bavaria expelled the Turks from the place. Again did the Turks capture it, in 1690; and again did the Austrians expel them, in 1717; at which latter date Prince Eugene so utterly defeated the Turkish army as to lead to the formal cession of Belgrade to Austria. Again, in 1739, in 1788, and in 1791, did this important town change hands, according as the Turks or the Austrians happened to be most powerful or most successful. For the last half-century Belgrade has remained in the hands of the Turks, but with less pressure from Turkish power than almost any other town in the empire, since the Sultan has been forced to give a kind of constitution to Servia, of which Belgrade is the capital.

Belgrade is divided into four quarters, the most conspicuous of which is the Citadel, which forms the centre of the town, and is constructed on a steep acclivity jutting out into the Danube. The first objects that meet the eye on entering the fortress are the arsenal and magazines, erected by the Austrians during their possession of Belgrade in the beginning of the last century. These once splendid edifices are fast mouldering away, and so, indeed, are the ramparts, bastions, and massive towers around them; for though the Sultan, by virtue of his agreement with the Servians, is allowed to keep a garrison at Belgrade, yet the pasha of the town expends as little as possible on such matters, choosing rather to place as much of the revenue as possible in his own private coffers. The other three quarters constitute the more modern part of Belgrade; and contain a hundred mosques and churches, two bazaars, twelve baths, the palace of the Prince of Servia, the palace of the Greek Bishop, and other buildings. The population is about twenty thousand; but the commerce is much more extensive than in most other towns of similar numbers.

Leaving Belgrade, where we have made a somewhat lengthened stoppage on our route, we find the left bank of the Danube presents a generally flat and monotonous appearance for a considerable distance; little being seen but the watch-posts or guard-houses of the military-frontier militia. On the right bank the Turkish or Servian town of Semendria comes in sight; it presents a

singular appearance on account of having twenty-two towers, such as are attached to feudal castles; it owes its existence to one of the Servian princes, who governed the country before the Turks had set foot in Europe.

The steam-boat traveller on the Danube meets with few objects of interest for many miles beyond Belgrade; the country, being unvaried by the alternations of hill and dale, presents none of those prominent points on which the eye loves to linger. At length, however, hills are seen in the distance, approaching more and more nearly to the river as we arrive at a lower part of the course. Moldava is the first town which is influenced by this change in the physical features of the scene; it lies at the foot of mountains which may be considered as offshoots from the Carpathians.

From Moldava to Orsova, a distance of sixty or eighty miles, the river is so much interrupted by shallows as not to be navigable for the regular steam-boats; and the plan which travellers follow is this: they leave the steamer, and embark in a kind of sailing-cutter, capable of containing twenty or thirty persons; while the cargo, carriages, and heavy baggage are transferred to barges which follow the cutter at a slower rate. When the cutter and barges have arrived at a part of the river where there is deep water, another steamer is in waiting to receive the passengers. The great difficulty in the navigation of this part of the Danube arises from the circumstance that it flows over no fewer than six reefs of rocks, some of which are at times covered with only eighteen inches of water, rushing down with a velocity which no steamer could safely trust. At some periods of the year there is an increase of depth which enables vessels to pass, but generally speaking nothing but shallow, flat-bottomed boats can be navigated here. A diving bell has been sent over from England, and attempts have been made to blast the ridges of rock under the water, but the attempts have not been successful. Another plan proposed, is to cut a canal parallel with the banks of the river, extending to a point where deep water again occurs; but the close approach of the hills to the water's edge, and the hardness of the rock which forms them, render this plan almost unattainable. Under these circum-



BELGRADE.

stances it has been deemed best to construct a road along the left bank, from Moldava to Orsova; this has been done, and although it is tedious and irksome for a traveller to transfer all his luggage, first, from a steam-boat to a carriage, and then from carriage to steam-boat, yet this is less inconvenient in the end than any attempts to brave the dangers of the rapids in the river. The road was constructed principally through the patriotic exertions of Count Szechenyi, who has done so much to advance Hungary in the scale of nations; and it will bear comparison in many parts with the celebrated roads over the Alps at Simplon and Stelvio. The precipitous nature of the rocks in many places rising perpendicularly from the river, has hitherto prevented the formation even of a continuous foot-path along this part of the bank; but the carriage-road has been successfully formed by excavating, with gunpowder, a ridge in the face of the precipice, and where the banks slope down gradually, by supporting it upon a terrace of masonry, carried over the water-courses on bridges.

CALOTYPE PICTURES.

FROM the time when Mr. Talbot divulged the processes of his new and beautiful art of Photogenic drawing*, a very large number of experiments have been made on the subject; new processes more or less valuable have been discovered, and notwithstanding the partial eclipse which the art suffered in consequence of the disclosures of Mr. Daguerre it has lost none of its interest with scientific men. The recent improvements in the art by Mr. Talbot himself are so remarkable, and his results so easily attained, that a brief statement of them will doubtless be acceptable to our readers.

The pictures prepared by the new processes are called *Calotype*, that is, beautiful patterns or types. They are produced upon writing paper of a smooth surface and a close and even texture, and free from any water mark.

The paper is prepared as follows:—Dissolve 100 grains of crystallized nitrate of silver in six ounces of distilled water. With this solution wash one side of the paper by means of a soft brush, and put a mark in one corner of the side thus prepared in order that it may be known again. Dry the paper at a considerable distance from the fire, or else leave it for a few hours in a dark room. When dry, or nearly so, dip it into a solution of iodide of potassium, containing 500 grains of the salt dissolved in one pint of water, and let it remain two or three minutes in this solution. Then dip it into a vessel of water, dry it lightly with blotting paper, and finish drying it at a fire, which will not injure it even though held tolerably near, or it may be left to dry spontaneously.

These processes are best conducted by candlelight. The paper thus far prepared is called *iodized paper*, because it has a uniform pale yellow coating of iodide of silver. It is scarcely sensitive to light, but ought nevertheless to be kept in the dark; it may be preserved in a portfolio for any length of time without injury.

The next process, which is to render the paper sensitive, had better be deferred until the paper is wanted for use. The iodized paper is then to be washed with a liquid prepared in the following manner:—

Dissolve 100 grains of crystallized nitrate of silver in two ounces of distilled water: add to this solution one sixth of its volume of strong acetic acid. Let this mixture be called A.

Make a saturated solution of crystallized gallic acid† in cold distilled water. The quantity dissolved is very small. Call this solution B.

When a sheet of paper is wanted for use, mix two

equal portions of the liquids A and B. Let these portions be small, because the mixture cannot be kept long without spoiling. This mixture may be called the gallo-nitrate of silver.

Then take a sheet of iodized paper and wash it over on the marked side with this gallo-nitrate by means of a soft brush. This should be done by candlelight. Let the paper remain wet for half a minute, then dip it into water; dry it lightly with blotting paper, and lastly at the fire, holding it at a considerable distance. When dry it is fit for use. Mr. Talbot names this *calotype paper*, on account of the ease with which it receives the beautiful pictures of the camera obscura. If this paper be kept in a press, it will often retain its qualities in perfection for three months or more, and be ready for use at any moment; but as this is not uniformly the case, Mr. Talbot recommends that it should be used within a few hours after it has been prepared. If it be used immediately, the last drying may be dispensed with, and the paper be used in a moist state.

The calotype paper is sensitive to light in a degree which transcends a hundred times or more any kind of photographic paper hitherto described. If a piece of this paper be taken, and having covered half of it, the other half be exposed to daylight for the space of one second in the dark cloudy weather of winter, this brief moment is sufficient to produce a strong impression upon the paper; but the impression is hidden from the eye, and its existence would not be suspected by any one who was not forewarned of it by previous experiments.

In order to revive the impression the paper must be again washed with the gallo-nitrate of silver, and then be gently warmed before the fire. In a few seconds the part of the paper upon which the light has acted begins to darken, and finally becomes entirely black, while the other part of the paper remains white. Even a weaker impression than this may be brought out by repeating the wash of gallo-nitrate of silver, and again warming the paper. On the other hand, a stronger impression does not require the warming of the paper, for a wash of the gallo-nitrate suffices to make it visible, without heat, in the course of a minute or two.

A remarkable proof of the sensitiveness of the Calotype paper is afforded by the fact that it will take an impression from moonlight. If a leaf be placed upon a sheet of the paper an image of it may be obtained in this way in about 20 minutes.

A paper so highly sensitive to light is admirably adapted to receive images in the camera obscura. If the aperture of the object lens is one inch, and the focal length fifteen inches, one minute is amply sufficient in summer to impress a strong image upon the paper of any building upon which the sun is shining. When the aperture amounts to one third of the focal length, and the object is very white, such as a plaster bust, &c., one second appears to be sufficient to obtain a tolerably good impression of it.

The images thus received upon the Calotype paper are, for the most part, invisible. When washed with the gallo-nitrate of silver, and the paper warmed, it is highly curious and beautiful to watch the spontaneous commencement of the picture on the blank paper; to see the first tracing of the stronger outlines, and then the gradual filling up of all the numerous and complicated details. The artist should watch the picture, as it develops itself, and when it appears to have attained sufficient strength and clearness, further progress should be stopped by fixing the picture.

In order to do this, the picture must first be washed with water, then lightly dried with blotting-paper, and then washed with a solution of bromide of potassium*, containing 100 grains of the salt dissolved in eight or

* See *Saturday Magazine*, Vol. XIV., p. 138.

† See *Saturday Magazine*, Vol. XVI., pp. 71, 79.

* Instead of this salt, which is very expensive, the tincture of galls diluted with water may be used, but Mr Talbot does not think the results are altogether so satisfactory.

ten ounces of water. After a minute or two it should be again dipped in water, and then finally dried. The picture is thus very strongly fixed, and as it remains transparent there is no difficulty in obtaining a copy from it. The Calotype picture is a *negative* one, in which the lights of nature are represented by shades; but the copies are *positive*, the lights and shades being the same as in nature. They also represent the objects in their natural position, with respect to right and left. The copies may be made upon Calotype paper, but Mr. Talbot to make them upon the photographic paper invented by him and described in a former article. (*Saturday Magazine*, Vol. XIV., p. 138.) Although it occupies as much as from three to thirty minutes of sunshine to obtain a copy upon this paper, yet, when obtained, the tints appear more harmonious and pleasing to the eye. The copies are made by placing the picture upon the photographic paper, with a board below, and a plate of glass above; and pressing the papers into close contact by means of screws, and thus exposing the whole to a strong light.

When a Calotype picture has furnished several copies, it sometimes becomes so faint that no more good copies can be procured from it. But these pictures possess the beautiful and remarkable property of being susceptible of revival. In order to restore them to their original appearance, it is only necessary to wash them again by candle-light with gallo-nitrate of silver, and warm them: this causes all the shades of the picture to darken, while the white parts remain unaffected. The shaded parts of the paper thus acquire an opacity which imparts renewed spirit to the copies, of which a second series may now be taken, extending often to a very considerable number. In reviving the picture, it sometimes happens that various details appear which had not before been seen, having been latent all the time, yet not destroyed by their long exposure to sunshine.

RURAL ECONOMY FOR THE MONTHS.

XI.

NOVEMBER.

Enveloped in a murky cloud,
With tearful eyes and wallings loud,
November takes his sullen road,
Thick with the forest's honours strow'd;
A wither'd woodbine decks his brow,
His hand a sapless oaken bough.

The darken'd day's impetuous flight,
The o'erhanging storms, the approach of night,
Warn us with heedful eye to watch
The hours' precarious course, and catch,
As best we may, the favouring time
For action in our watery climate.

MANT'S *British Months*.

THE more important agricultural occupations of the year are now completed, and leisure is afforded for those minor improvements which the lover of neatness and order will ever be ready to make, and which are found to be not less advantageous in an economical point of view, than pleasing to the eye of the observer. New fences are raised for the protection of the land, and the necessary repairs are made in those which are falling to decay. In open weather plantations are formed and securely fenced in; and thus even waste and unproductive soils are turned to good account.

But in order to gain the most favourable results, it is necessary to form a plantation with reference to the nature of the soil, its elevation, or inclination, and the trees best adapted to thrive in it. The planter must in this respect be guided by what he observes in nature, and as he marks how the beech, the birch, and the ash grow naturally on chalky soils, the oak on clay formations, and the fir tribe on sandy wastes, so will he be careful to select from among them such descriptions of trees as are best suited to the site of the intended plan-

tation. If the spot be dry and elevated, and the soil poor with an easterly aspect, he will probably do well to plant it with larch and with Scotch fir; the former being one of the most valuable of those trees which, from time to time, have been introduced into this country. It grows rapidly, is easily transplanted, and yields timber that is deservedly esteemed for various uses, and which is now frequently employed as a substitute for oak. The Scotch fir is of little value; but it is used as a shelter to other trees in young plantations, where it gives a pleasing variety of colour. On account of the inferior quality of the timber, however, some economists say, "Do not plant Scotch firs, they are only fit for fuel, and your land may be more profitably employed." Yet it is, when young, an excellent nurse to the more delicate trees, and, on that account, is not to be despised. The wood of this tree is much more valuable in Scotland than in England.

A mixture of oak, ash, and Scotch fir is the usual selection of trees for ordinary clay soils; but if these soils are improved by the addition of chalk, marl, &c., almost any kind of trees will flourish on them, so that the beech, the larch, and the elegant and valuable Spanish chesnut, may be introduced. On peaty soils, when thoroughly drained, and covered with a dressing of lime, a variety of trees may be likewise raised; the best mixture, perhaps, where the situation is tolerably elevated, is that of the larch, Scotch fir, birch, and ash. In clay soils the hazel and the hornbeam may be employed as underwood, and in moist situations, even where the soil is peaty, the birch and alder are excellent for the same purpose.

The prosperity of a plantation can only be secured by uniting with a consideration of the nature of the soil a careful selection of hardy seedlings. These should be raised on land of a similar quality to that into which they are about to be placed; for if a seedling be taken from a warm, rich, nursery-ground, and transplanted to a poor soil, in an exposed situation, it will be something remarkable if it survives the change, and reaches even a stunted growth. The experience of all careful planters fully proves that if the seedlings be procured from land at least not better than that for which they are intended, and if the soil be also prepared by either deep digging or manuring, then the mortality among the plants is very small indeed. A modern writer notices the ill effects, he has observed to arise from the usual careless way of depositing the roots of the young trees in the ground, and also from the unnecessary length of time which is suffered to elapse between the period when the plant is taken from the nursery and replanted. He says,

I have always found the good effect of causing the roots of the young plant to be carefully arranged, and spread out before the earth is thrown in upon it; the usually heedless way in which the roots are thrust into the hole, and perhaps broken, or materially bruised in the act of treading in the earth upon them, is of necessity very prejudicial to the young plant; and then, again, a still more negligent practice, that of *ploughing* in the young trees is often adopted on a large scale, by which the plants are still more hastily deposited in the soil, and are neither fixed with sufficient firmness in the ground, nor placed in an upright position. From these causes I have witnessed some very decided failures; and there is certainly no economy in this hasty mode of planting; the trees perish in great numbers, have to be replaced at considerable expense, and, in the mean time, the owners lose all the advantages which might have been insured, from a more skilfully obtained rapidity of growth.

The mode of planting which involves the least outlay at the commencement, and which consists in merely digging a small hole, and inserting the tree, seldom proves the most economical in the end. A little more expense bestowed in deep ploughing and manuring, will make a wonderful difference in the growth, and the con-

sequent profit of the plantation, and will amply repay itself.

November generally brings with it a succession of gloomy weather, and of heavy rains. The effect of the latter must be attentively watched by the farmer; and if, as is often the case, some of the water-courses become filled up, and portions of land become flooded, the cause of the evil must speedily be removed. Water-meadows may now be flooded, and under-draining carried on, especially in heavy soils. Should the weather remain tolerably open, the sub-soil plough may be used, during this and the following winter months, with much advantage. The effect of breaking up the sub-soil is to give more room and freedom of growth to roots and minute fibres, and thus to render more available the decomposing matters the soil may contain. It also exposes the soil more freely to the action of the atmosphere, and increases its absorbent power, a point of great importance to the cultivator. The sub-turf plough may also be brought into action during this month. This instrument loosens the soil beneath old turf, and increases its produce. Sir Edward Stracey, the inventor of this plough, describes it as being used to loosen the turf about ten inches and a half deep below the surface, without turning over the flag. There are no marks left by which it can be known that the land has been so ploughed, except from the straight lines of the coulter, about fourteen inches from each other. In about three months, these lines totally disappear and the quantity and thickness of the turf give plain proof of the advantages derived from the process.

The live stock on a farm must, during the present month, be kept warm and well-fed. Regularity and attention in this respect cannot be too strongly insisted on. Sheep, in particular, find this a trying season, and their well-being depends on the care bestowed upon them. The usual additions to their green-food of hay, straw, and oil-cake, will now be found desirable; and they must be kept out of low wet situations. In upland and mountain regions, sheep undergo a process called salving, which is intended to destroy vermin, and to quicken and increase the growth of wool, and prevent it from becoming detached from the skin. The materials employed are melted butter, or some cheap substitute for that article, mixed with tar, with which the sheep are carefully anointed, previous to the setting in of cold weather, and then sent back to the mountains.

The wild productions of the woods and hedges, such as acorns, beech-nuts, sloes, haws, &c., comprehended under the general term, *mast*, were formerly considered of more importance to the farmer than they now seem to be. The old authors speak of these productions as being equally efficacious with beans, peas, and corn, for the fattening of hogs. But it has been proved that the bacon or pork from *mast-fed* animals is of a more oily nature than any other, and is also deficient in flavour to that of animals fattened on the productions of the farm. Yet *mast* may be advantageously used to improve the condition of lean store hogs, until they become about half fat, when the change to meal or corn will give the requisite firmness and flavour to the pork. Swine are not often, as in former days, sent into the woods to seek this kind of food; their manner of eating, and the serious injuries they commit on young trees and plants, prevent the continuance of the custom; but, in some districts the acorns, beech-nuts, &c., are collected for them, and form an economical supply of food. This practice, especially in seasons like the present, when these wild productions are remarkably abundant, is doubtless a prudent one, and repays the trouble incurred.

The care which we have stated to be necessary at this time of the year, to repair and improve the hedges and fences of the farm, must also be extended to the yards, sheds, and out-buildings. Upon the good condition of these, does the welfare of the farming-stock during the

winter greatly depend, and if, while more important affairs were pressing on the farmer's attention, he suffered them to fall into a state of comparative decay, the present is time when leisure and opportunity are afforded him of the putting them into thorough and substantial repair, and of making those improved arrangements which are now becoming so general in farm-yards. Convenience and utility in this department has been much studied of late years, and we consequently find more regularity in outward appearance, as well as more systematic plans within.

Cattle-sheds are now capacious, well-lighted, and ventilated buildings, in which cows or oxen can be kept dry, clean, and moderately warm. Cattle seldom suffer materially from *dry* cold. The wet yard, the damp walls, and the exposure to driving rain, prove injurious to them. In this respect the management of the Dutch farmers is worthy of notice. They have their cows regularly groomed, and the walks behind them sprinkled with sand. Among the necessary comforts of cattle may be mentioned a clean and dry bed, a portion of a trough for water, a portion for their oil-cake, or mangel, or turnips, and a rack for their dry food. These, with regular feeding, a lump of rock-salt in the manger, and occasional variations if possible in the food, are the chief points to be attended to in the stall-management of cattle.

For the purpose of protecting sheep from severe and inclement weather, slight wooden buildings are sometimes constructed, each of sufficient size to contain a considerable number of sheep. These houses are low for the sake of warmth, and are usually a third part longer than their breadth. The sides are lined with boards, and the bottoms are evenly laid with stone, or some other material. The sides exposed to the sun are lined with moveable hurdles, that when it shines the whole may be laid open to give due refreshment, and allow the sheep an opportunity of feeding upon the pasture wherein they are placed. The houses are securely covered in at the top, and are sometimes fixed to particular spots; though it is considered better to have them constructed in a manner which will allow of their being removed as they may be wanted.

The occupations which we have briefly alluded to, with others of a similar nature, afford full employment for the short and gloomy days of November, though there are frequent periods of suspended toil in consequence of the state of the weather. The poet Clare thus speaks of November's changing aspect—

Thus wears the month along, in chequered moods,
Sunshine and shadows, tempests loud, and calms;
One hour dies silent o'er the sleepy woods,
The next wakes loud with unexpected storms;
A dreary nakedness the field deforms—
Yet many a rural sound and rural sight,
Lives in the village still about the farms,
Where toil's rude uproar hums from morn till night—
Noises in which the ears of Industry delight.

At length the stir of rural Labour's still,
And Industry awhile her care foregoes!
When Winter comes in earnest to fulfil
His yearly task, at bleak November's close,
And stops the plough, and hides the field in snows;
When frost locks up the streams in chill delay,
And mellows on the hedge the jetty sloes
For little birds—then Toil hath time for play,
And nought but threshers' flails awake the dreary day.

THE same Hand which holds out forgiveness to the penitent, and assistance to the frail, dispenses comfort and hope to the afflicted.—BLAIR.

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